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## IRON.

In few instances do we perceive the concern of Providence for the wants of mortals more fully exemplified, than in the abundant distribution of this substance over the face of the earth, not only in a metallic state, but also in an infinite variety of combinations: from which source are derived many articles of almost indispensable use in our arts and manufactures, as, plumbago, commonly called black-lead, (a combination of iron with charcoal,) Prussian blue, green vitriol, &c. but at present we must only take into consideration the simple metal.

Iron is seldom found in a pure metallic state; but its ores are diffused throughout nature in greater abundance than those of other metals, oftentimes combined with them, and sometimes in the state of an oxide, *i. e.* rust. In this state occurs the Swedish iron ore, which produces such excellent metal. In order to reduce the ore into cast-iron, in some manufactories, it is broken into small pieces, and mixed with lime, or some substance capable of promoting its fusion. It is then thrown into the furnace, together with a quantity of coke or charcoal; where after being submitted for some time to a most intense heat, the reduced metal descends through the fuel, and collects at the bottom, whence it is let out, and forms pigs of cast-iron. In this state it is employed in the fabrication of various kinds of machinery and utensils.

Cast-iron acquires carbon from the charcoal or coke used in its reduction, and originally contains oxygen and other adventitious substances, which cause its brittleness and render it fusible, though with some difficulty. In order to deprive it of these, it is kept in a state of fusion for a considerable time, and repeatedly stirred; during which process the carbon and oxygen uniting, pass off in the state of carbonic-acid gas or fixed air. At length, having become thick, it is taken from the furnace, and submitted to the action of the hammer, or the regular pressure of large steel rollers, by which the remaining impurities are forced out, and the metal is rendered malleable, ductile, and nearly infusible. Iron in this state is called bar or wrought-iron.

Iron, by the above process being divested of charcoal, must again absorb a small portion of pure carbon, in order to be converted into steel. This is effected by submitting good iron to an intense heat, for several hours, in conjunction with carbonaceous matter, such as charcoal, carbonate of lime, &c. Good steel contains about one part of carbon in two hundred of iron.

It may be remarked, that, of the metals in common use (platinum excepted) iron alone possesses the property of welding. Innumerable are the advantages which we derive from this peculiar quality, by which, without fusion, merely by heatings, iron is moulded into the variety of forms, in which it is every where exhibited to our view. Iron possesses likewise the property of being attracted by the magnet, and of becoming itself magnetic. To this property we are indebted for the mariner's compass; an instrument, by which man is enabled to steer his course towards any part of the globe with the greatest accuracy and certainty.

Contrary to the prejudiced opinion of the ancients, who supposed that iron was poisonous, and that wounds, inflicted with instruments made of this metal, healed with difficulty, it seems that its effects on the animal economy are very beneficial, both in medicinal preparations, and in its state of natural solution in chalybeate waters. Indeed of all metals this is the most important; since there is no other, wherein are contained, at the same time, so many useful properties; none which can be applied to such a variety of uses; and, finally, none which exists in such abundance, or in so many different states, for it pervades all nature, is found in vegetables, and even in animal fluids.

It may not be improper to state here, that the article, known in commerce by the name of *tinned plate*, is not tin, as some suppose, but iron plates, which, having undergone certain chemical preparations, are immersed in melted tin, which not only adheres to the surface, but even partly penetrates the plate, and gives it a very brilliant appearance. Perhaps it is this brilliancy, that has led many to suppose, that, in domestic operations in which a considerable degree of heat is necessary, they were using a metal the fusing point of which is far below that of lead.

Though iron is so largely diffused in Ireland, and gives name to one of our loftiest mountains, Sleibh-an-Erin, or *Iran*, its application to useful purposes is not of so great antiquity in our island as might be supposed—probably not earlier than the Christian era, about which time the Britains and Gauls appear to have been instructed by the Romans in its usefulness and importance. Before this period, we as well as our Gaulic and British neighbours, used only that metallic compound called bronze, of which material all our very ancient military and domestic implements are formed, like those of the Greeks in the heroic ages.

M. O'K.

## FOR THE DUBLIN PENNY JOURNAL.

## SONETTO.

*Di Filicaja.*

Così con saggio avviso i giorni, e l'ora	Thus with a still but stern solemnity
L'età maestra a ben usar m'esorta,	Time bids us seize the hours that
E ogni Stagion consigiatrice accorta	glide away,
Par, che dicami ognor: Sempre si muore.	And every speaking season seems to say,
E questi boschi, e questo alpestre orrore:	Be wise in time—man only lives to die.
E'l crescer delle piante: e'l Sol che porta	The pomp of woods—the gloom of hills on high,
Or di quà 'l giorno, ed or di là il riporta:	The shooting trees—the Sun that far away
E'l aprirsi de' fiori al primo albore:	Bears, or from distant realms brings back the day,
E lo sfiorire a mezzan di fan fede,	The flow'rs, expanding to the morning sky,
Fede fan, che l'età passa, e non dura,	Expiring with the noon—all sadly show,
E ogni cosa co tempo al tempo cede;	Too sadly show, alas that all below
Eche, se i Nomi, e l'Opre il tempo fura,	Yields in its turn to Time's devouring away.
Strigner Vento, che fugge, e mai non riede	Why then pursue with vain and groveling care
E'vana troppo, e troppo ignobil cura.	Vain hopes, and empty names, and shapes of air,
	That like the breezes come, and pass away?

Clarence Street, Liverpool.

C.

## THE DUBLIN PENNY JOURNAL.

In closing the Twentieth Number of the DUBLIN PENNY JOURNAL, its Conductors desire to address a few words of grateful acknowledgment to their readers, and to state that they expect to be shortly able to announce that the impression of their little Work has reached to Forty Thousand.

In the management of a publication of this nature, it will be obvious that they have great difficulties to contend with, and that in their anxiety to cater for the variety of tastes for which they feel themselves obliged to purvey, they are placed very much in the situation of the painter in the fable, who in his desire to please every one, pleased no one. If, however, they may take the increasing patronage of the public as a criterion, their efforts, though of the same kind, have hitherto been more fortunate in their results. This success is in every way gratifying to the feelings of the conductors. It repudiates the taunt that the Irish people are indifferent to instruction in useful knowledge, or not to be attracted outside the vortex of political or sectarian excitements; and it holds out a cheering hope—the noblest that could animate their exertions—that their labours will be productive of much national good. They may venture to look forward to the time, when Irishmen will no longer be pointed at as a race whose intellectual faculties, though confessedly of no mean order, have been allowed to run waste by neglect or abuse, but as a people whose minds have been tutored and improved, stored with solid and useful knowledge, and regulated by rational tastes and correct sentiments.

To effect “a consummation” so “devoutly to be wished,” they will most ardently persevere, and hope for the cheering aid and applause of all good men: pecuniary remuneration, to any great extent, they cannot venture to look forward to, for great as the circulation of their Journal is, it has not enabled the proprietors hitherto to divide a single Penny.

It will be seen that their present number is deficient in the usual number of illustrations. It is entirely the result of accident—but means shall be taken to prevent its recurrence, and their next number will atone for the present deficiency.

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